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Taxonomic Paper

First report of *Dicopus longipes* (Subba Rao) (Hymenoptera: Chalcidoidea) from India with new distribution data on some species

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Abstract

Dicopus longipes (Subba Rao) (Hymenoptera: Chalcidoidea: Mymaridae) is recorded from India for the first time. New additional distribution records of Mymaridae from the southern Indian states of Tamil Nadu and Kerala are documented.

Keywords

Mymaridae, distribution, India.

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Introduction

Fairyflies (Hymenoptera: Chalcidoidea: Mymaridae) are internal egg parasitoids of insects except two species that parasitize the larvae of eulophids (Huber et al. 2006). From India, 31 genera and 134 species of Mymaridae have been reported so far (Manickavasagam and Rameshkumar 2013, Ramesh Kumar et al. 2013). The mymarid fauna of India is not well documented as several states and biodiversity rich areas of India have not been surveyed so far for mymarids. Because mymarids are small to tiny, only Malaise traps and yellow pan traps yield good field collections. In this paper, we document new records of mymarids for the southern Indian states of Kerala and Tamil Nadu. One species, *Dicopus longipes* (Subba Rao), is reported as new to India.

Materials and methods

Parasitoids were collected from Kasaragod, Kozhikode, Palakkad, and Idukki districts of Kerala and Coimbatore and Salem districts of Tamil Nadu using sweep netting, yellow pan traps and Malaise traps in different ecosystems (Noyes 1982). Collected specimens were processed using hexamethyldisilazane (HMDS) (Brown 1993) and card/slide mounted for identification. Voucher specimens are deposited in the reference collections of the National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Bangalore, India and the Zoological Survey of India (ZSI), Western Ghat Regional Centre, Calicut, India.

Taxon treatments

Acmopolynema indochinense Soyka

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Palakkad; locality: Chittur; samplingProtocol: Yellow pan trap; eventDate: 2011-02-04; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: Kumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Acmopolynema indochinense (Fig. 1), hitherto known from Karnataka and Uttar Pradesh (Triapitsyn and Berezovskiy 2007), is a new record for Kerala.

Figure 1.

Acmopolynema indochinense, lateral view.

Acmopolynema malabaricum Subba Rao

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Tamil Nadu; municipality: Salem; locality: Yercaud; samplingProtocol: Yellow pan trap; eventDate: 2014-08-06; individualCount: 4; sex: females; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureae of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Acmopolynema malabaricum (Fig. 2) was known only from Kerala (Hayat and Anis 1999) and is new to Tamil Nadu.

Figure 2.

Acmopolynema malabaricum, lateral view.

Acmopolynema problema Triapitsyn & Berezovskiy

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Palakkad; locality: near Silent Valley; samplingProtocol: Sweep net; eventDate: 2013-01-16; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: Nikhil; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Acmopolynema problema (Fig. 3) has been recorded from only Karnataka (Triapitsyn and Berezovskiy 2007) and is recorded here from Kerala.

Figure 3.

Acmopolynema problema, lateral view.

Alaptus sp.

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Palakkad; locality: Pattambi; verbatimLocality: RARS campus; samplingProtocol: Yellow pan trap; eventTime: 2014-01-25; habitat: Paddy field; individualCount: 5; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Alaptus (Fig. 4) includes some of the smallest mymarids. From India, it was recorded from Delhi, West Bengal, Tamil Nadu (Subba Rao and Hayat 1983), Karnataka

(Manickavasagam et al. 2011), and Pudhucherry (Rameshkumar et al. 2011). We record it here from Kerala.

Figure 4.

Alaptus sp., lateral view.

Camptoptera matcheta Subba Rao

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Tamil Nadu; municipality: Salem; locality: Yercaud; samplingProtocol: Yellow pan trap; eventDate: 2014-08-06; habitat: Weedy filed; individualCount: 3; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Camptoptera matcheta (Fig. 5) was known only from Karnataka (Subba Rao 1989) and is new to Tamil Nadu.

Figure 5.

Camptoptera matcheta, lateral view.

Dicopus longipes (Subba Rao)

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Palakkad; locality: RARS campus; samplingProtocol: Yellow pan trap; eventDate: 2014-01-25; habitat: Paddy field; individualCount: 1; sex: Female; lifeStage: Adult; recordedBy: A Rameshkumar; identificationID: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources, Bangalore; institutionCode: ICAR-NBAIR

Diagnosis

Dicopus longipes (Fig. 6) differs from *D. noyesi* Manickavasagam by the following features: antennal scape uniformly slender (distinctly bulging subapically in *D. noyesi*), F1 almost as long as F2 (distinctly shorter in *D. noyesi*), F6 and F7 slightly bottle shaped, the apex of each segment shorter and wider (F5 to F7 bottle-neck shaped, the apex of each segment distinctly long and narrow in *D. noyesi*).

Figure 6.

Dicopus longipes, lateral view.

Distribution

Malaysia (Subba Rao 1984); India (Kerala). Pricop and Andriescu (2011) have mentioned that *D. longipes* is known from India, but it appears to be incorrect. After Subba Rao (1984) described it from Malaysia-Sabah under *Kubja*, the only subsequent reference to this species was by Huber (2009) when he synonymised *Kubja* with *Dicopus*.

Dicopus noyesi Manickavasagam

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Calicut; locality: red hills; samplingProtocol: Yellow pan trap; eventDate: 2014-04-25; habitat: Weedy field; individualCount: 2; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Dicopus noyesi (Fig. 7) was recorded from Andhra Pradesh and Tamil Nadu (Manickavasagam and Rameshkumar 2011) and we record it here from Kerala.

Figure 7.

Dicopus noyesi, lateral view.

Eofoersteria sp.

Materials

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Palakkad; locality: Pattambi; verbatimLocality: RARS campus; samplingProtocol: Yellow pan trap; eventDate: 2014-01-25; habitat: Paddy field; individualCount: 11; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

b. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Calicut; locality: Mavoor; verbatimLocality: Medical college campus; samplingProtocol: Yellow pan trap; eventDate: 2012-11-22; habitat: grassy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Eofoersteria (Fig. 8) was recorded from Tamil Nadu (Subba Rao and Hayat 1983) and Karnataka (Manickavasagam et al. 2011). We record it here from Kerala.

Figure 8.
Eofoersteria sp., lateral view.

Eubroncus sp.

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Tamil Nadu; municipality: Valparai; locality: Urulikkal; verbatimLocality: Periyar nagar; samplingProtocol: Yellow pan trap; eventTime: 2014-05-04; habitat: Weedy field; individualCount: 1, 1; sex: male, female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Eubroncus (Fig. 9) is a rarely collected genus previously known from West Bengal (Hayat and Khan 2009) and Karnataka (Manickavasagam et al. 2011). We record it here from Tamil Nadu.

Figure 9.

Eubroncus sp., lateral view.

Gonatocerus monticolus Zeya

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Calicut; locality: Vengeri; samplingProtocol: Malaise trap; eventTime: 2014-02-13; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: Raseena; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Gonatocerus monticolus (Fig. 10) is known only from its type locality in Uttar Pradesh (Zeya and Hayat 1995). We record it here from Kerala.

Figure 10.

Gonatocerus monticolus, lateral view.

Gonatocerus trialbifuniculatus Subba Rao

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Calicut; locality: Vengeri; samplingProtocol: Malaise trap; eventDate: 2014-02-13; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: Raseena; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Gonatocerus trialbifuniculatus (Fig. 11) is known only from Karnataka (Zeya and Hayat 1995). We record it here from Kerala.

Figure 11.

Gonatocerus trialbifuniculatus, lateral view.

Kikiki huna Huber

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Tamil Nadu; municipality: Salem; locality: Yercaud; samplingProtocol: Yellow pan trap; eventDate: 2014-08-06; habitat: Weedy field; individualCount: 24; sex: females; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Costa Rica, Hawaiian Islands, Trinidad and Tobago (Huber and Noyes 2013); Argentina (Triapitsyn 2013); India (Tamil Nadu).

Taxon discussion

Kikiki is unique among Mymaridae in having 4-segmented funicle, 2-segmented clava and 3-segemented tarsi. Only the type species, *K. huna* Huber (Fig. 12), is known so far. In India, *Kikiki* was first recorded by Manickavasagam and Palanivel (2013) from Tamil Nadu, but they did not confirm the species identity. The size of *K. huna* ranges from 150 to 170 µm and it holds the record for being the smallest winged insect known at present (Huber and Noyes 2013).

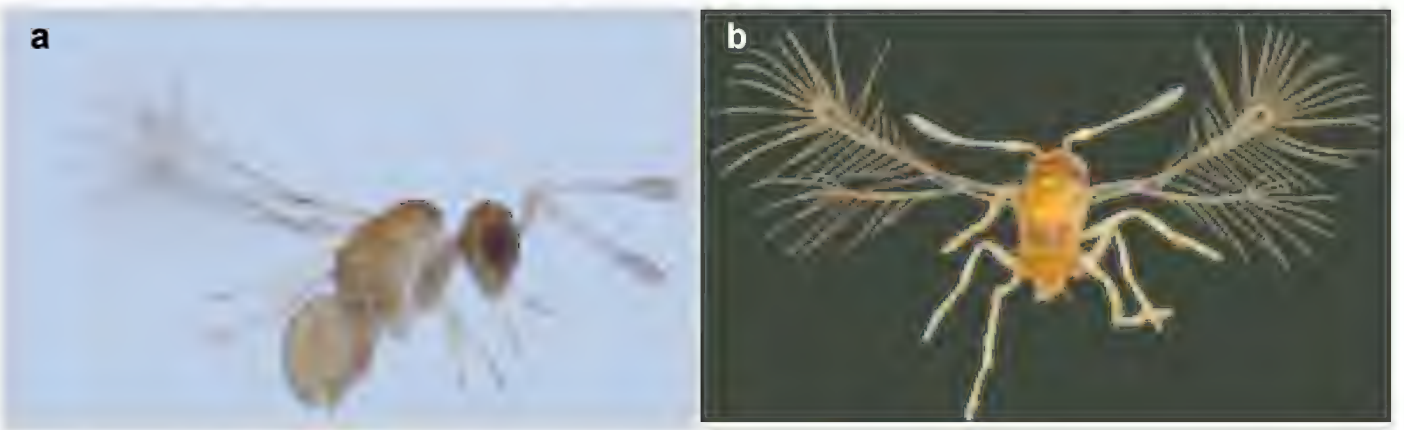

Figure 12.

Kikiki huna: Lateral and dorsal view.

a: Female, lateral view
b: Female, dorsal view

Litus sutil Triapitsyn and Berezovskiy

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Tamil Nadu; municipality: Salem; locality: Yercaud; samplingProtocol: Yellow pan trap; eventDate: 2014-08-06; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Litus sutil (Fig. 13) was known from Meghalaya (Ramesh Kumar et al. 2013). We record it here from Tamil Nadu.

Figure 13.

Litus sutil, lateral view.

Litus triapitsyni Rehmat and Hayat

Material

a. continent: Asia; country: India; countryCode: IND; municipality: Salem; locality: Yercaud; samplingProtocol: Yellow pan trap; eventTime: 2014-08-06; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Litus triapitsyni Rehmat and Hayat (Fig. 14) was recorded from Assam (Rehmat et al. 2009). We record it here from Tamil Nadu.

Figure 14.

Litus triapitsyni, lateral view.

Ooctonus nigrotestaceus Subba Rao

Materials

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Idukki,; locality: Vellimala; samplingProtocol: Sweep net; eventDate: 2013-04-07; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: Abhilash; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

b. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Idukki; locality: Mannavan shola; samplingProtocol: Malaise trap; eventDate: 2013-04-07; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: Bijoy; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Ooctonus nigrotestaceus Subba Rao (Fig. 15) was originally described from Karnataka (Subba Rao 1989). We record it here from Kerala.

Figure 15.

Ooctonus nigrotestaceus, lateral view.

Schizophragma sp.

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Tamil Nadu; municipality: Salem; locality: Yercaud; samplingProtocol: Yellow pan trap; eventTime: 2014-08-06; habitat: Weedy field; individualCount: 1; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Schizophragma sp. (Fig. 16) was recorded from Meghalaya (Ramesh Kumar et al. 2013). We record it here from Tamil Nadu.

Figure 16.

Schizophragma sp., lateral view.

Stethynium sp.

Material

a. continent: Asia; country: India; countryCode: IND; stateProvince: Kerala; municipality: Calicut; locality: East hills; samplingProtocol: Yellow pan trap; eventDate: 2014-04-25; habitat: Weedy field; individualCount: 3; sex: female; lifeStage: Adult; recordedBy: A Rameshkumar; identifiedBy: A Rameshkumar; institutionID: ICAR-National Bureau of Agricultural Insect Resources; institutionCode: ICAR-NBAIR

Distribution

Stethynium sp. (Fig. 17) was recorded from Delhi, Gujarat, Karnataka and Uttar Pradesh (Subba Rao and Hayat 1983). We record it here from Kerala.

Figure 17.

Stethynium sp., lateral view.

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Author contributions

A. Rameshkumar - Collection, Identification, Manuscript preparation

J. Poorani - Collection, Identification, Imaging, Manuscript preparation

M. Anjana - Collection, Identification

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